

## PATENT ABSTRACTS OF JAPAN

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(71)Applicant : FUJITSU LTD

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(30)Priority

Priority number : 07162287 Priority date : 28.06.1995 Priority country : JP

## (54) RESIST MATERIAL AND RESIST PATTERN FORMING METHOD

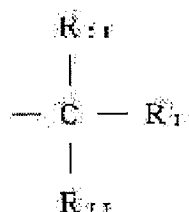
(57)Abstract:

PROBLEM TO BE SOLVED: To obtain a resist material having high transmittance to various radioactive rays including excimer laser and superior dry etching resistance and suppressing cracking at the time of development and the peeling of a pattern by incorporating a specified acidsensitive compd. and an acid generating agent which generates an acid when exposed with radiation.

SOLUTION: This resist material contains an acid-sensitive compd. contg. structural units each having an alkali-soluble group protected with a part contg. an alicyclic hydrocarbon group represented by formula I, II, etc., and an acid generating agent which generates an acid when exposed with radiation. The alkali-soluble group is released by the generated acid and makes the acid-sensitive compd. alkali-soluble. In the formulae I, II, each of R<sub>1</sub> and R<sub>11</sub> is optionally substd. straight chain or branched chain 1-4C alkyl, Z is plural atoms required to complete alicyclic hydrocarbon in combination with C and at least one of R<sub>11</sub>'s is alicyclic hydrocarbon.

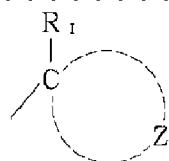


I

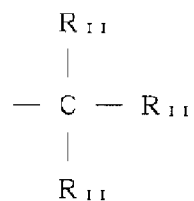


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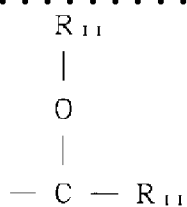
(11)特許出願公開番号



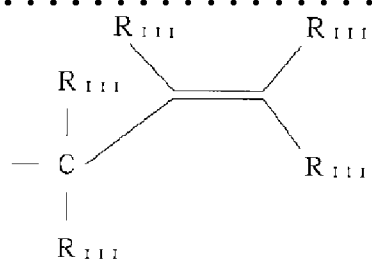
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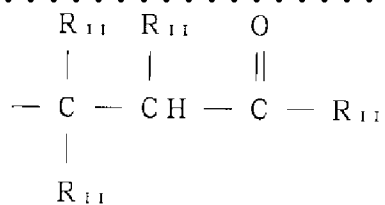
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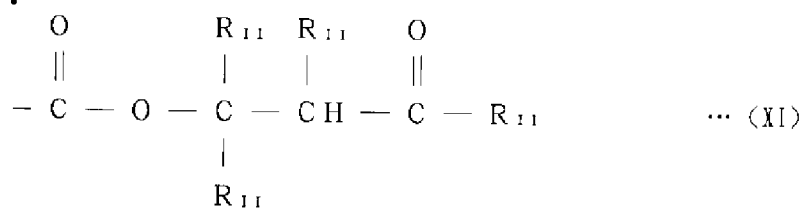
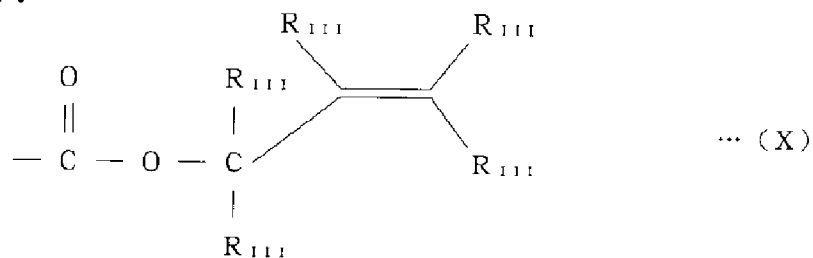
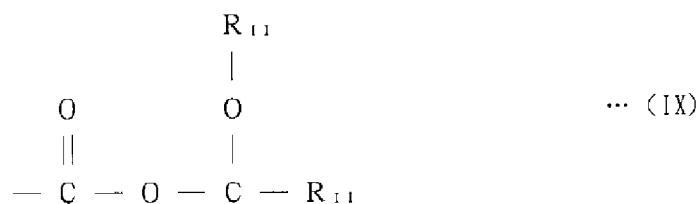
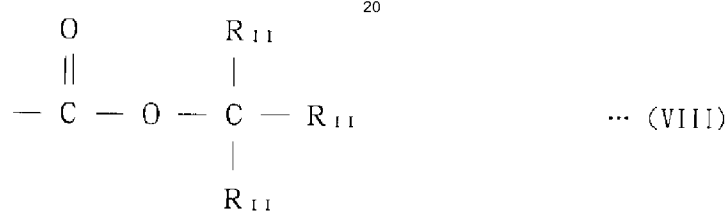
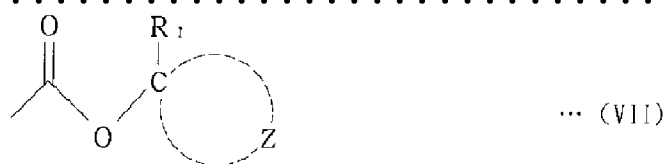
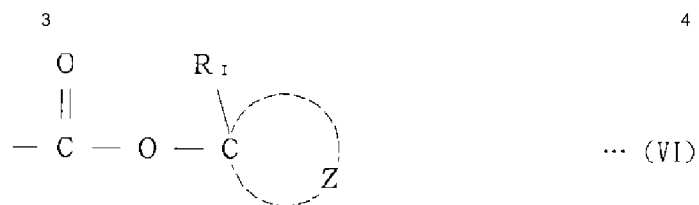
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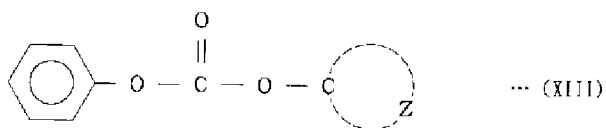
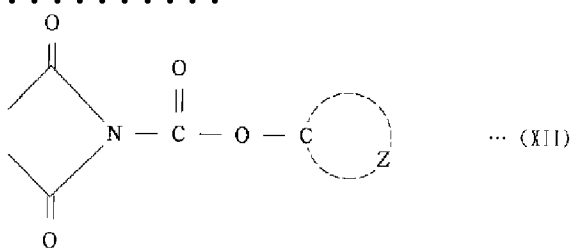


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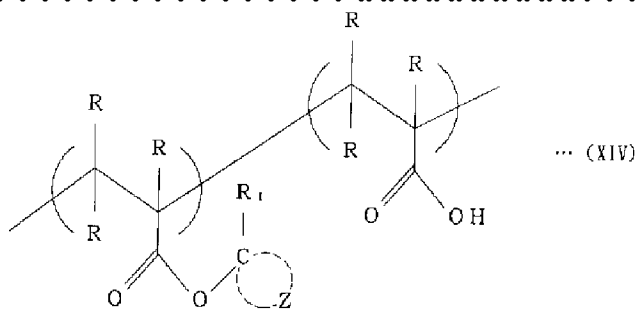
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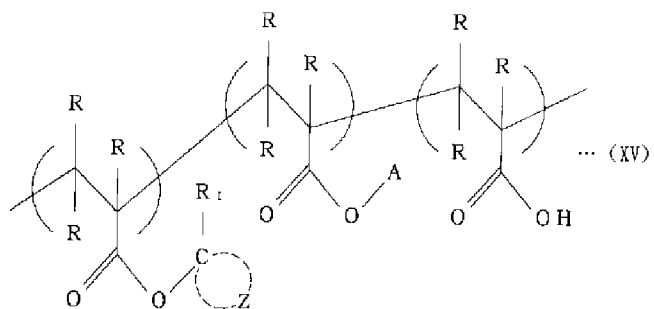




20°

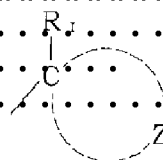
30°



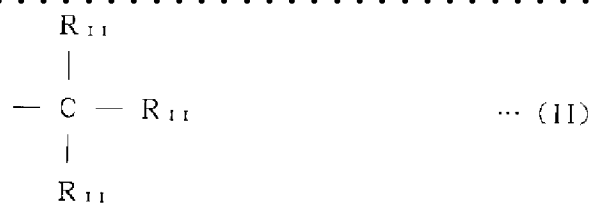


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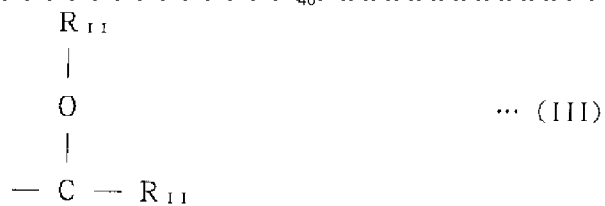
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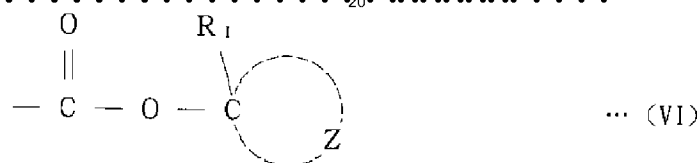
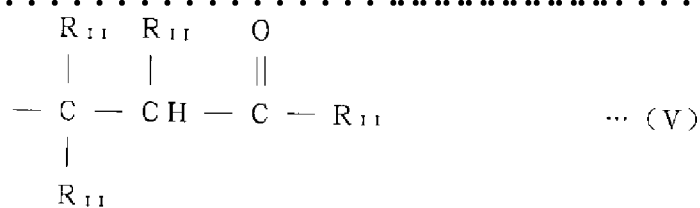
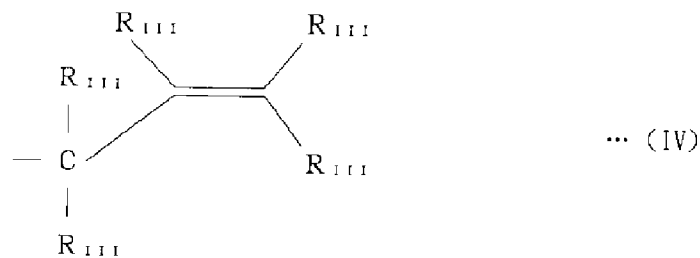


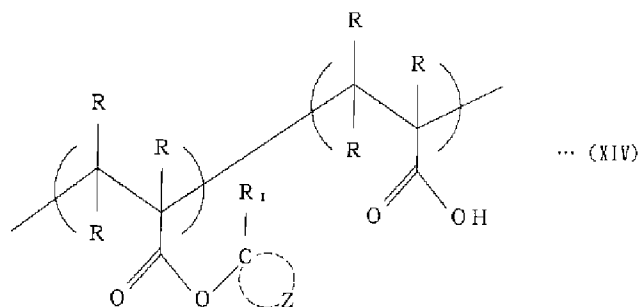
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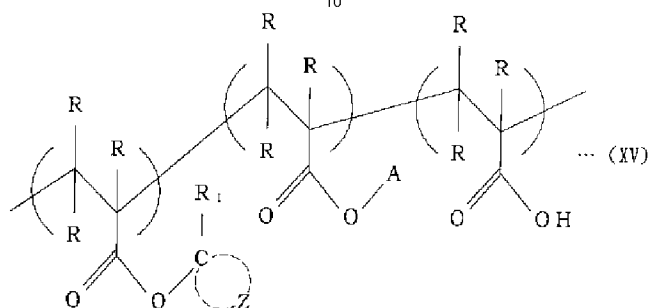
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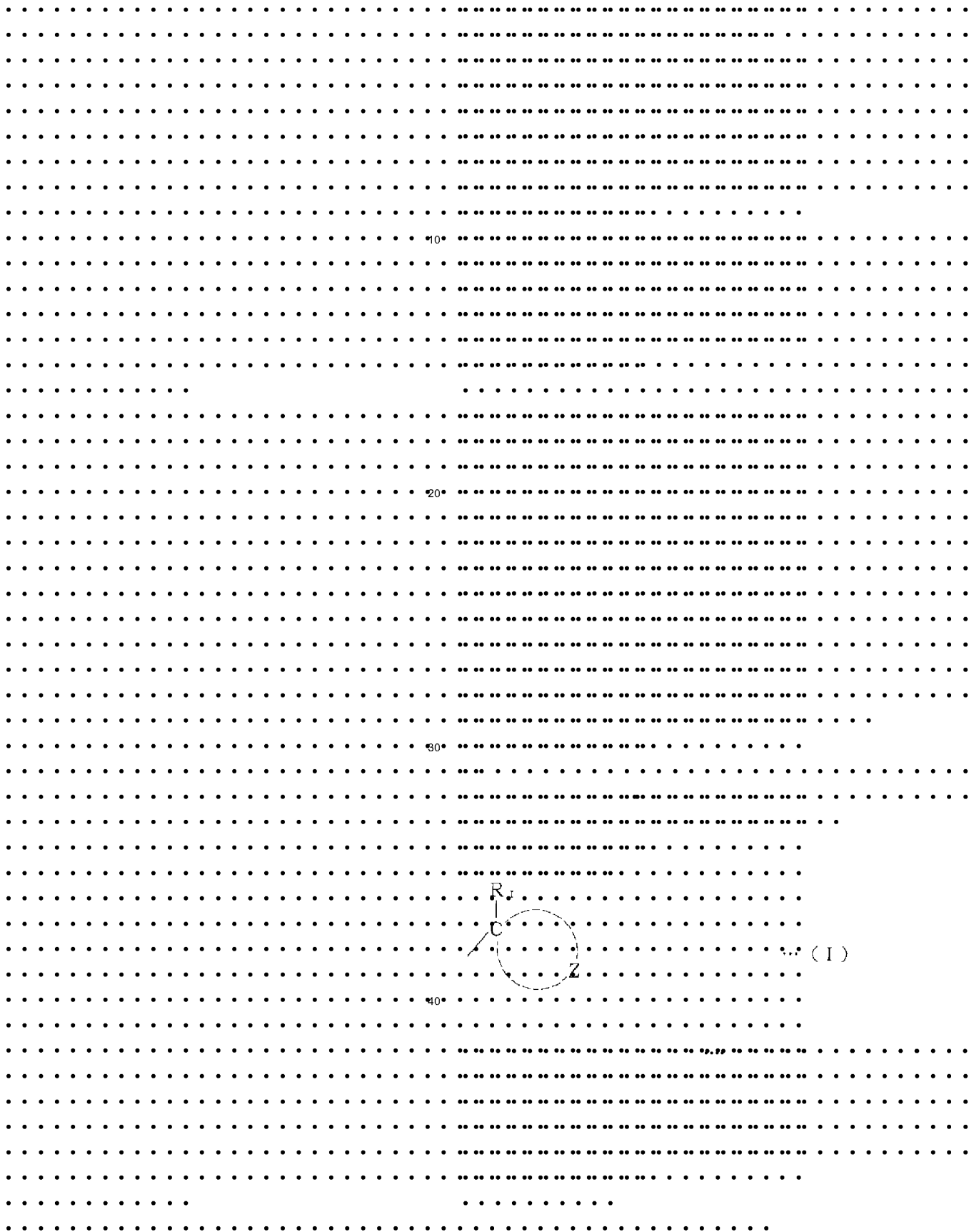


20\*

30\*

40\*



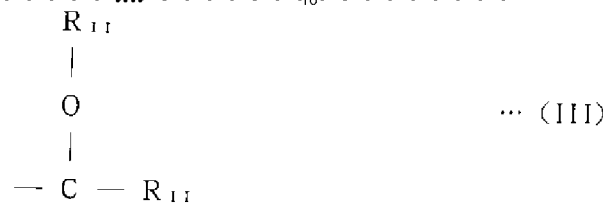


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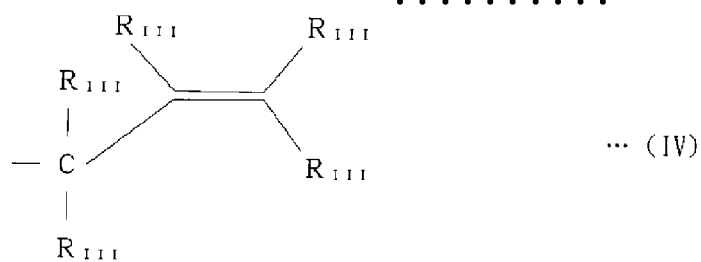
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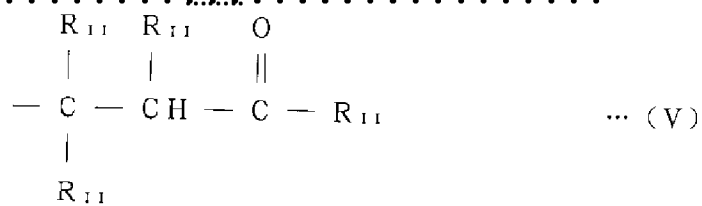
.....  
 .....  
 .....  
 ..... 40° .....



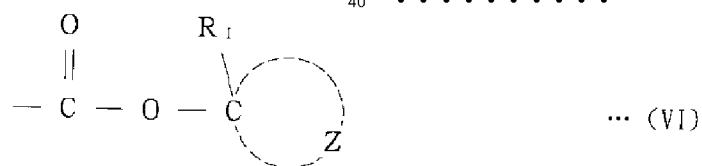
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 .....  
 ..... 30° .....  
 .....  
 ..... 40° .....

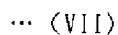


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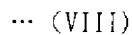
.....  
 .....  
 .....  
 ..... 50° .....

A 20x20 grid of dots. The dots are arranged in a sparse pattern. The 10th column contains dots in rows 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, and 20. The 10th row contains dots in columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, and 20. Additionally, there are dots at (18, 18), (19, 18), (20, 18), (18, 19), (19, 19), (20, 19), (18, 20), (19, 20), and (20, 20). All other positions in the grid are empty.



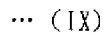
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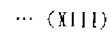
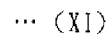
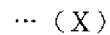


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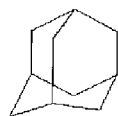
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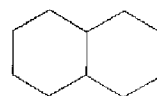
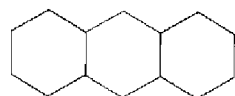
A dot grid paper template with a 20x20 grid of dots. The grid is divided into four quadrants by a vertical line and a horizontal line. The top-left quadrant is labeled "10°" and the bottom-right quadrant is labeled "50°". The top-right quadrant is labeled "20°" and the bottom-left quadrant is labeled "30°".

A dot grid paper template with a 20x20 grid of dots. The grid is divided into four quadrants by a vertical line and a horizontal line. The top-left quadrant is labeled '10' and the bottom-right quadrant is labeled '20'. The top-right quadrant is labeled '5' and the bottom-left quadrant is labeled '10'.

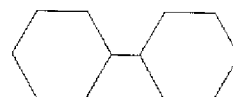
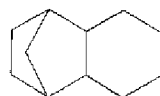
(2)



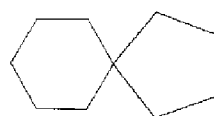
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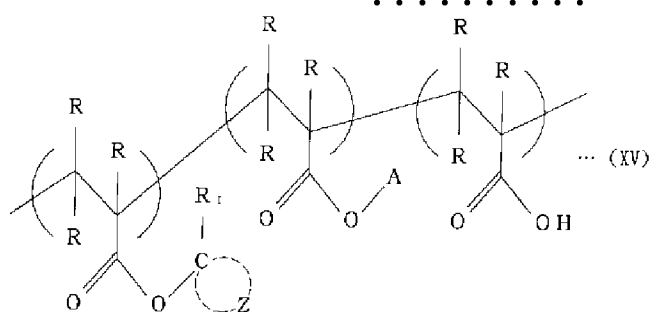
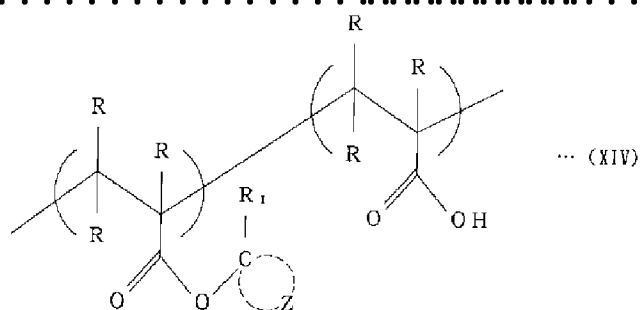
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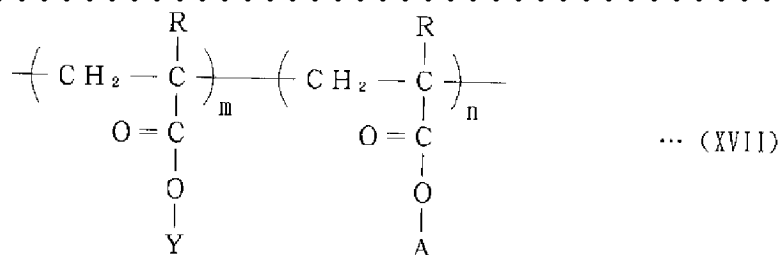
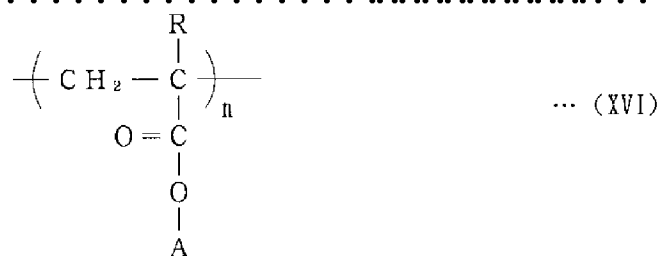


(8)

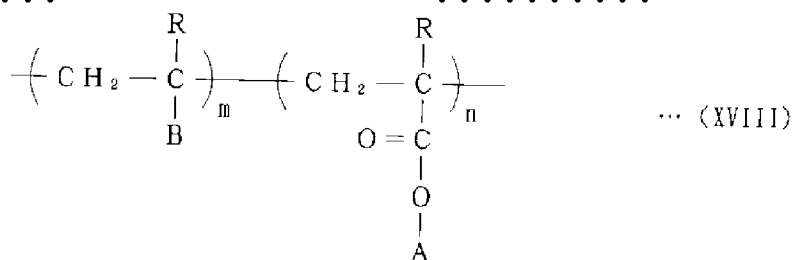


A 6x24 grid of dots. The dots are arranged in 6 rows and 24 columns. The last dot in the bottom row (row 6, column 24) is circled, and the number '50' is written next to it.



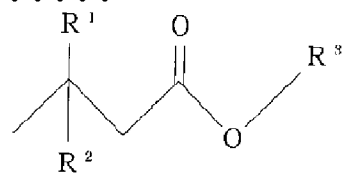


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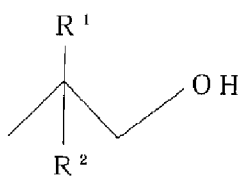




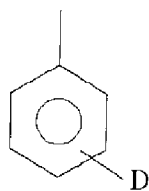
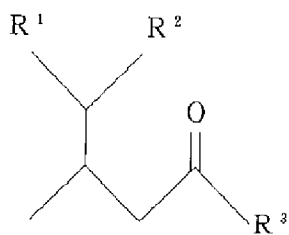
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10



20

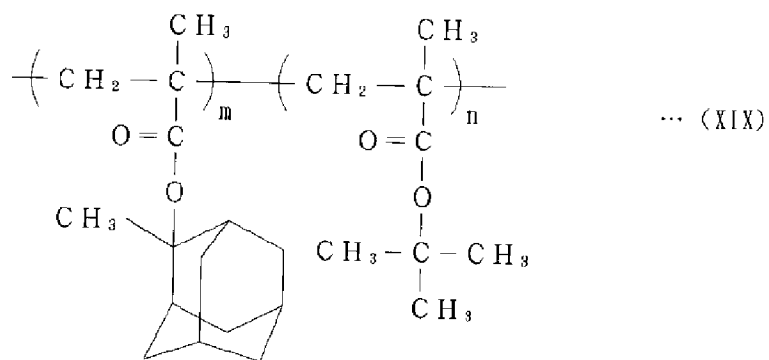


D :  $-OR^4$  ,  $-COOR^4$  又は  $-OCO-R^4$

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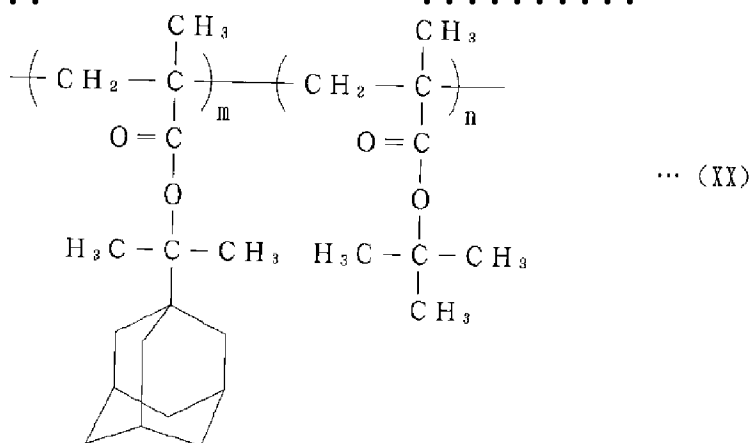
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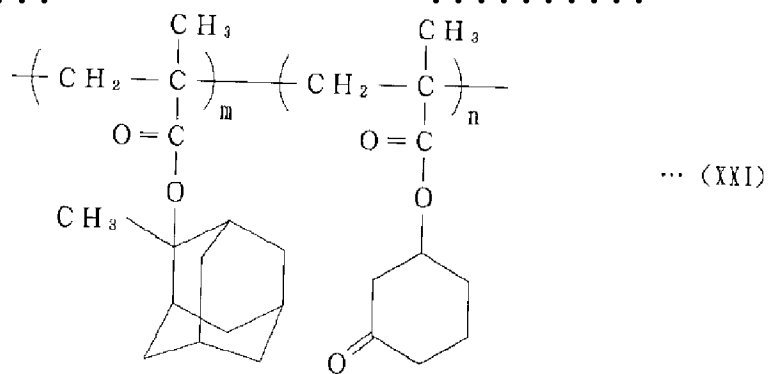
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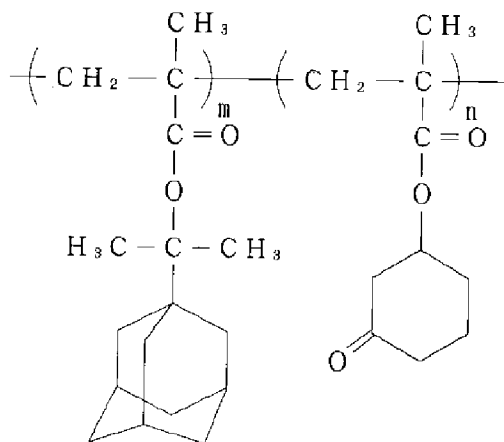
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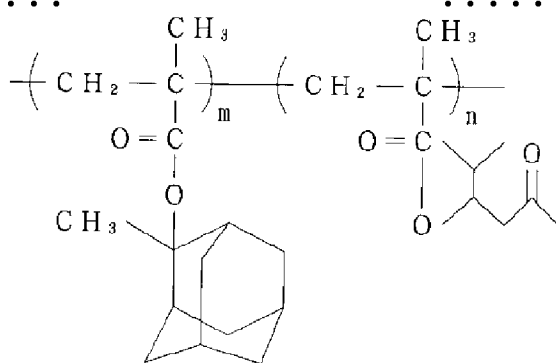


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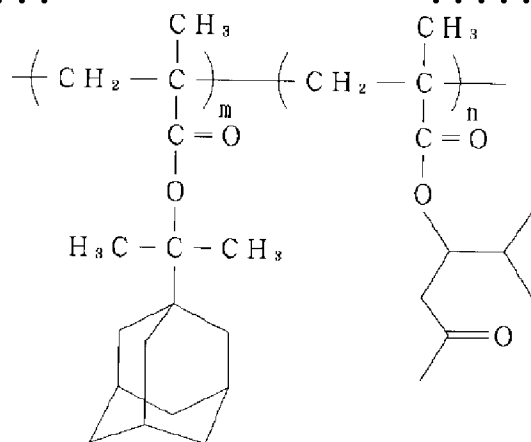
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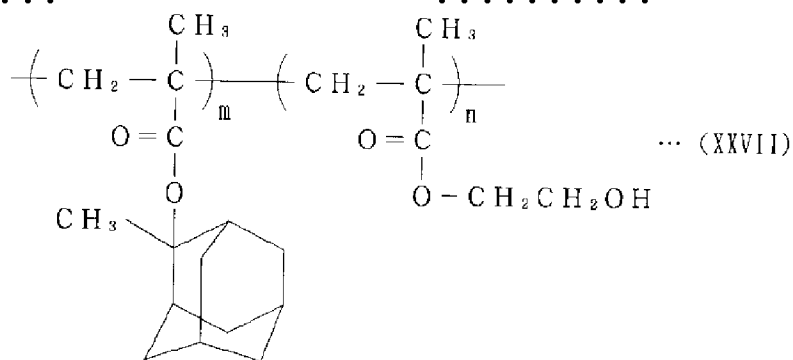
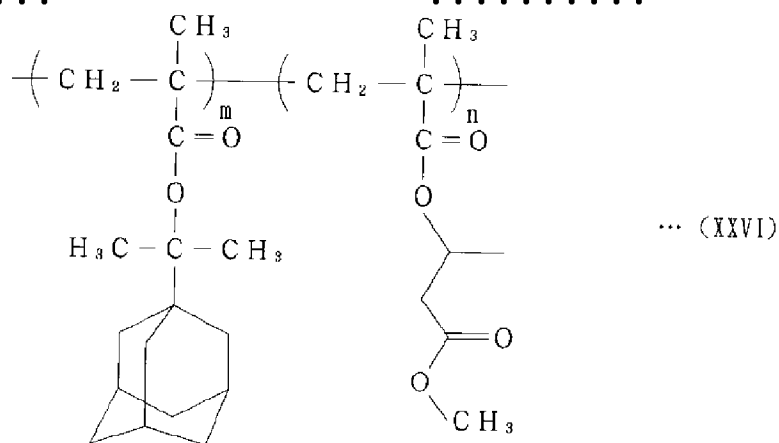
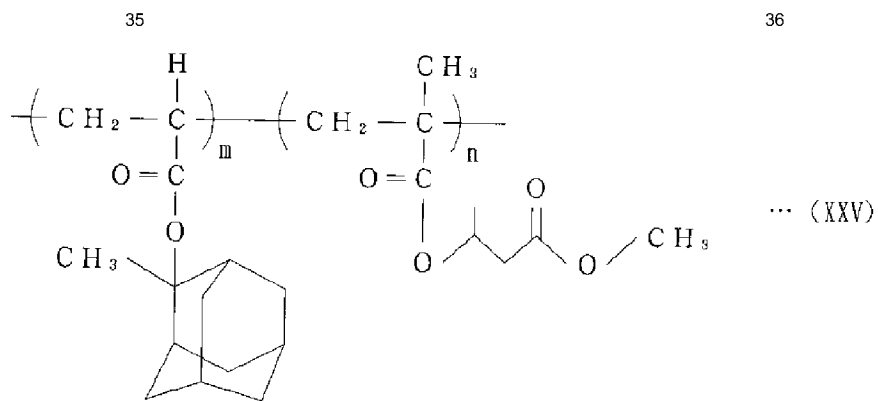
... (XXII)



... (XXIII)

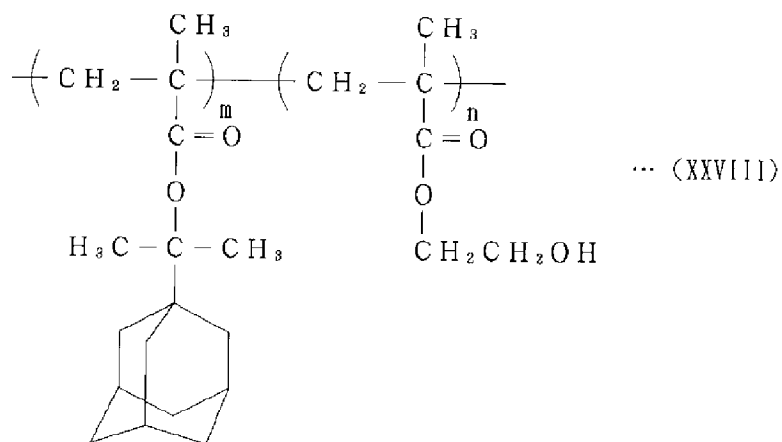


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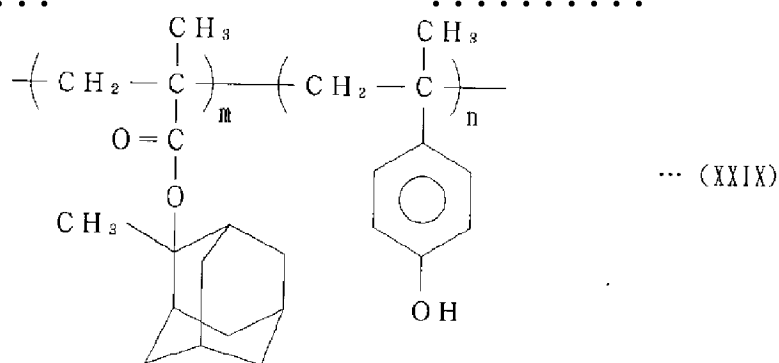
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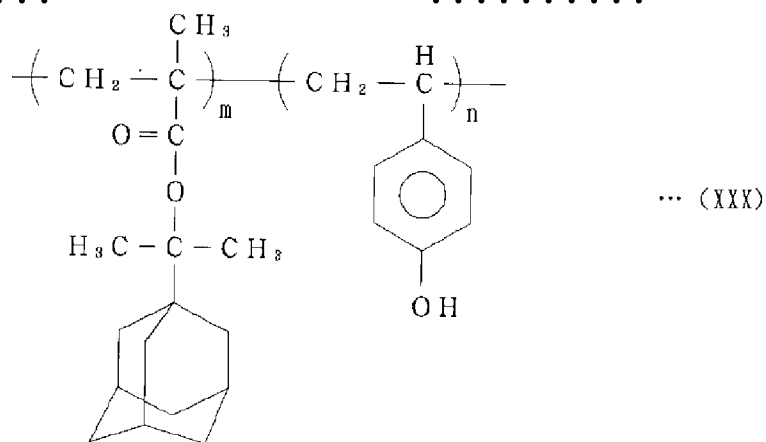
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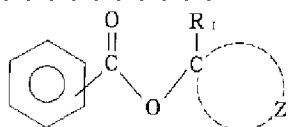
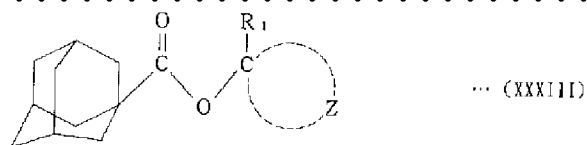
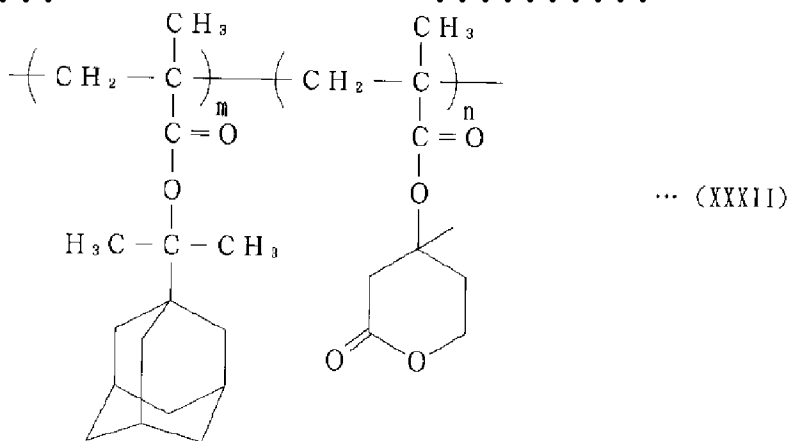
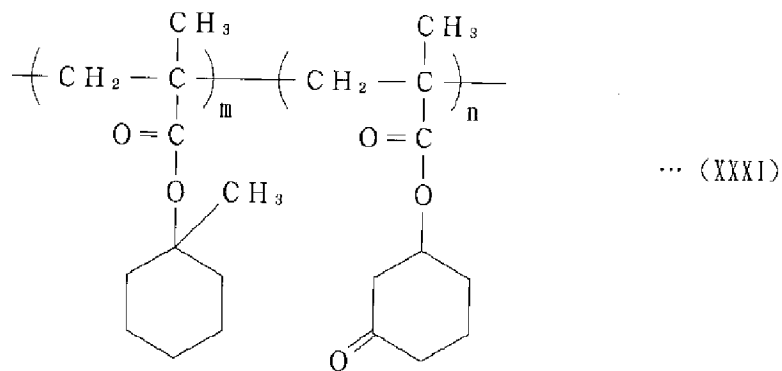
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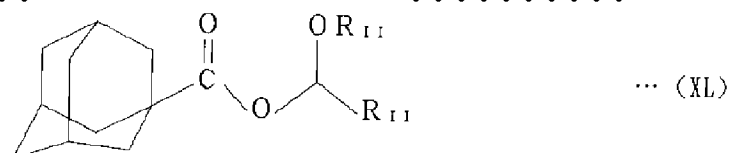
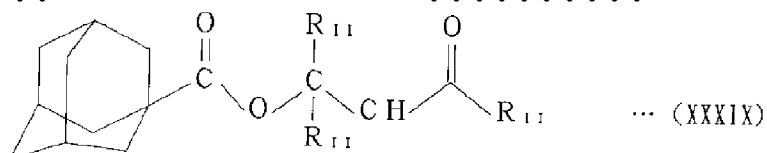
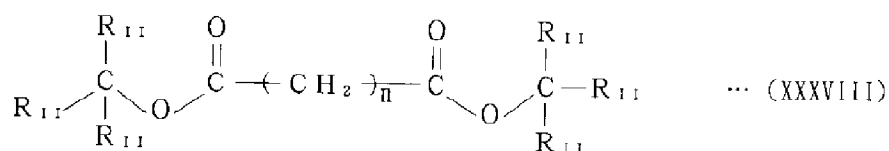
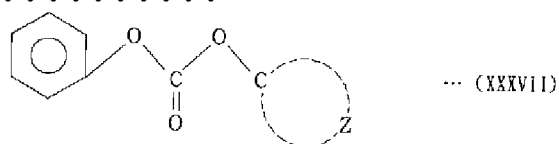
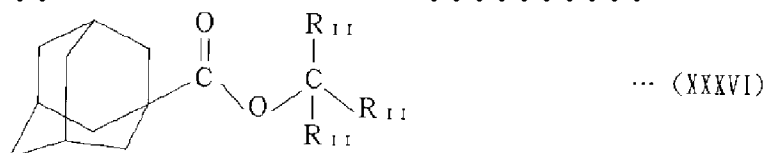
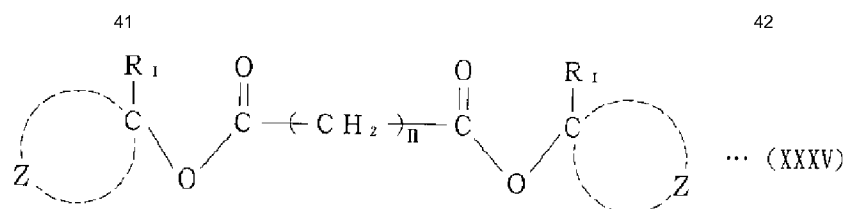


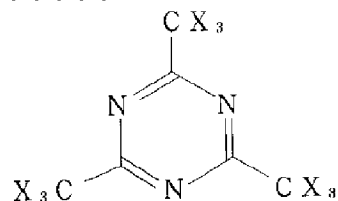
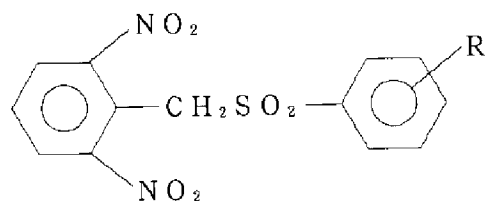
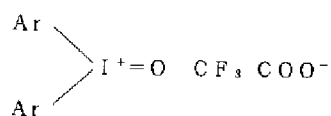
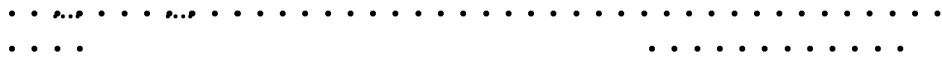
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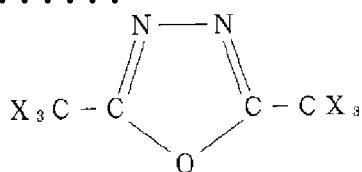




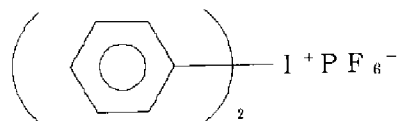




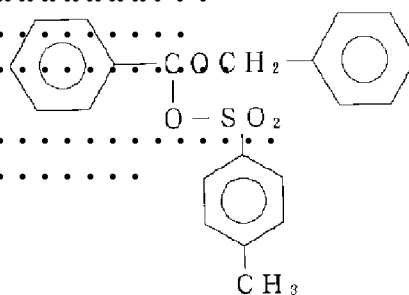
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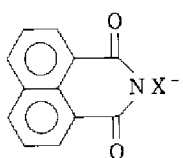
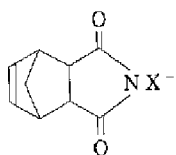
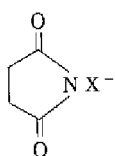
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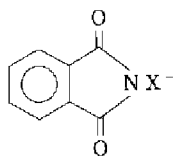
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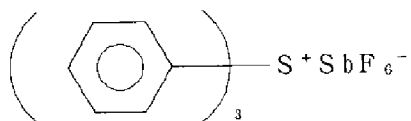
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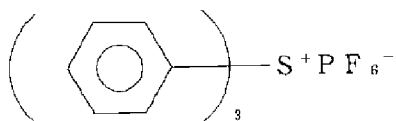
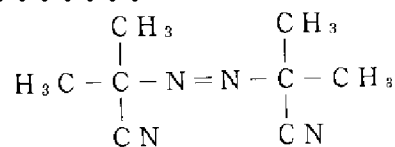
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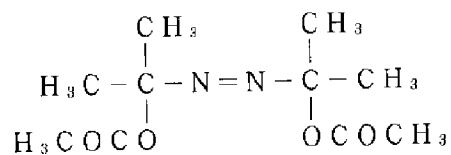
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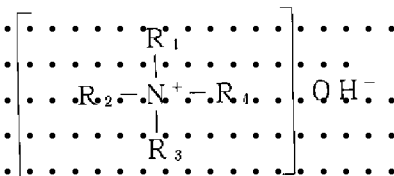
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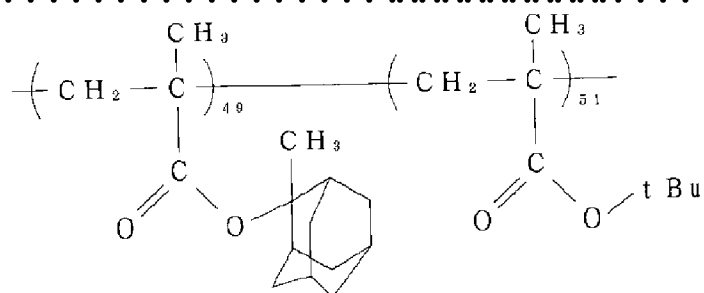
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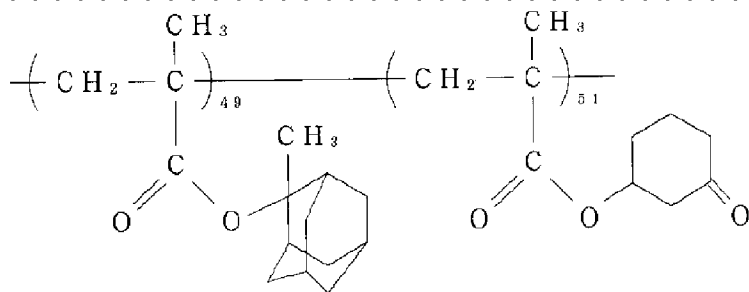
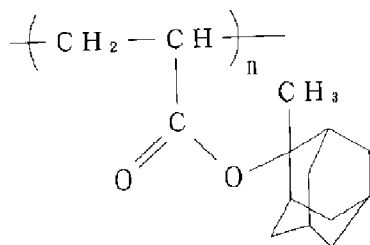
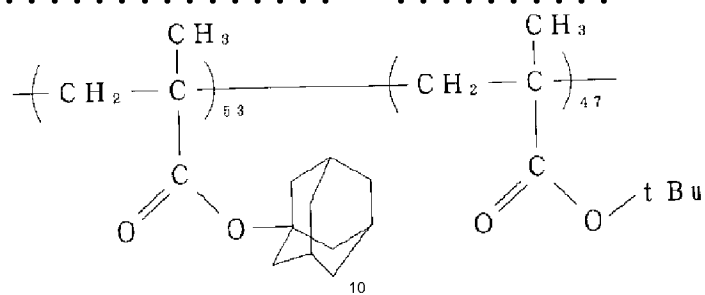


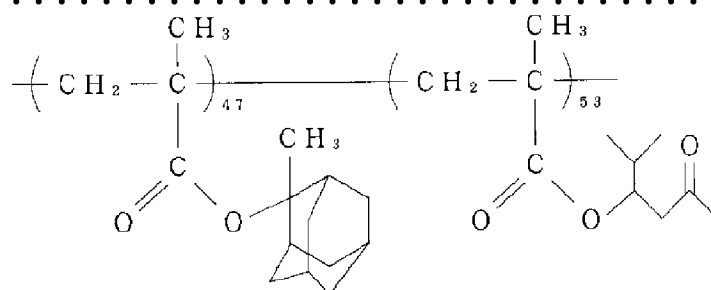
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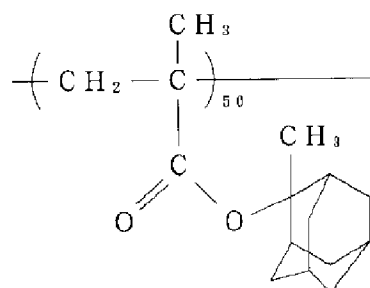
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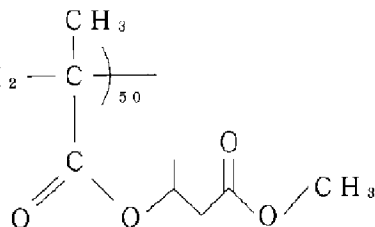




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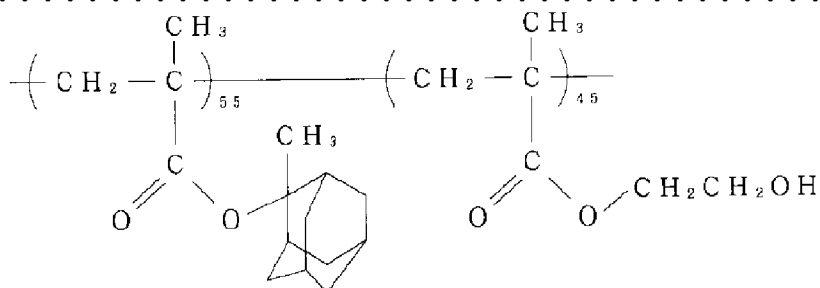


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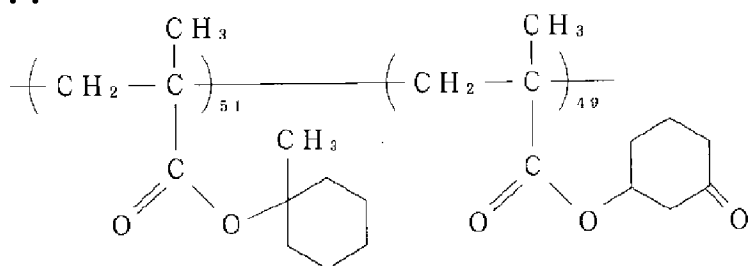
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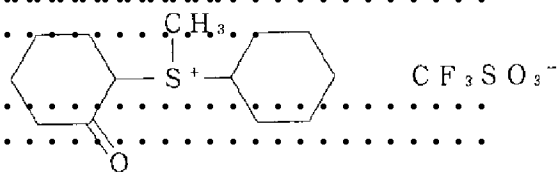


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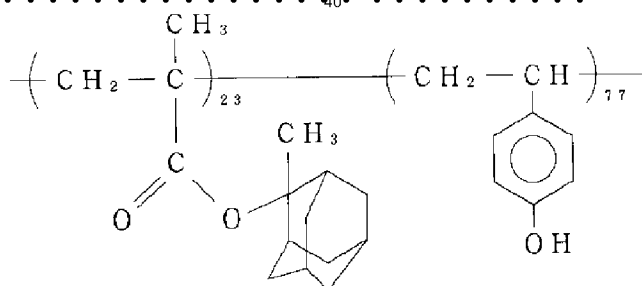
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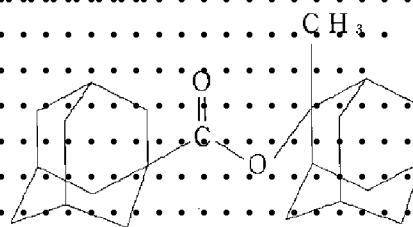
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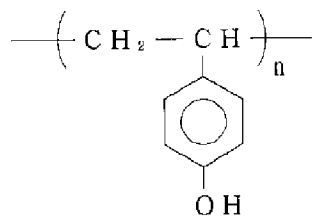


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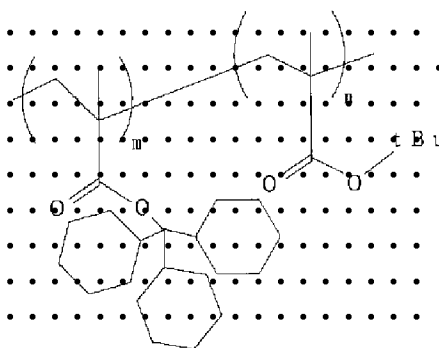


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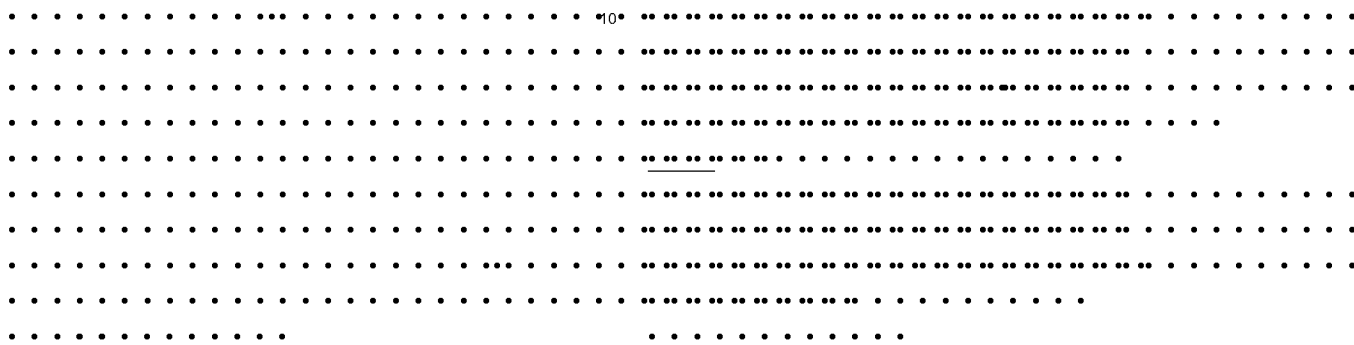
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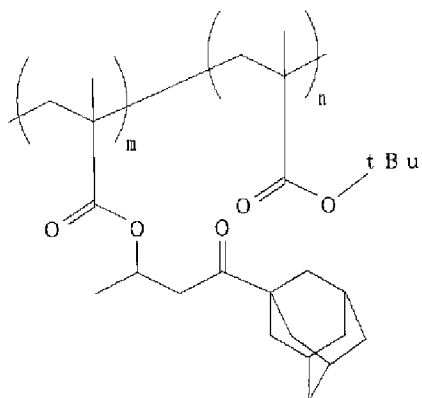


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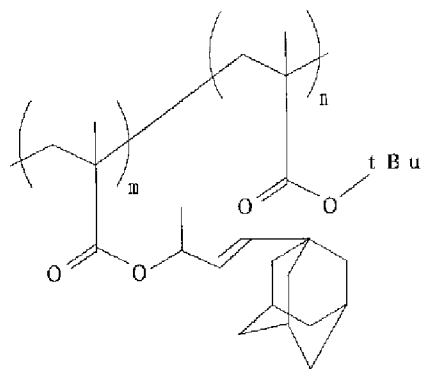


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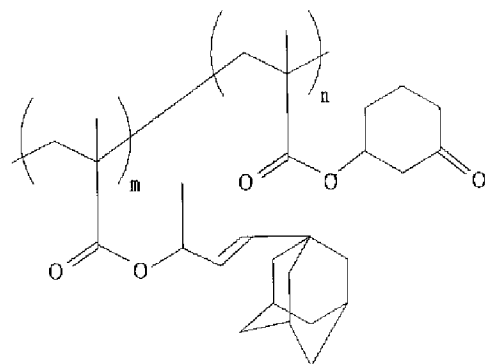
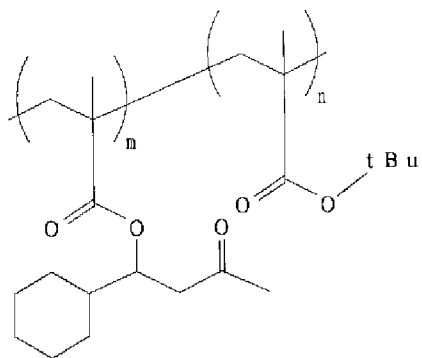
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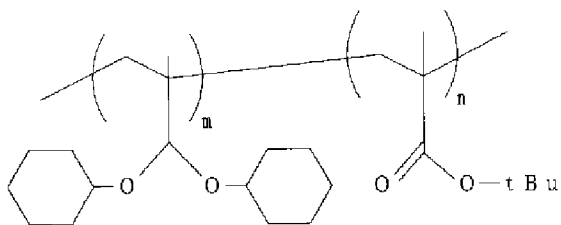
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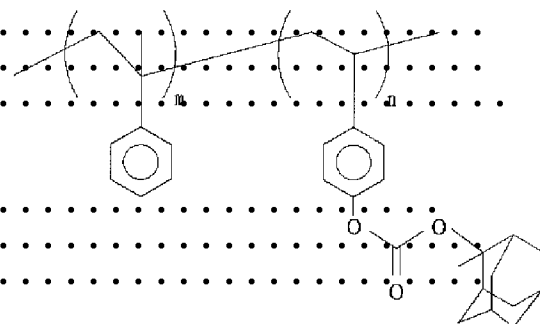
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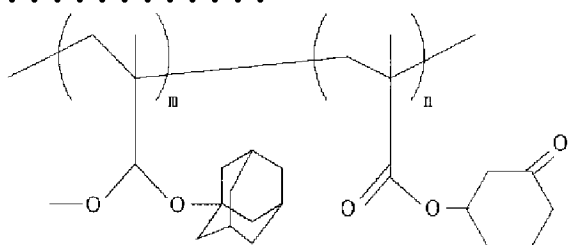
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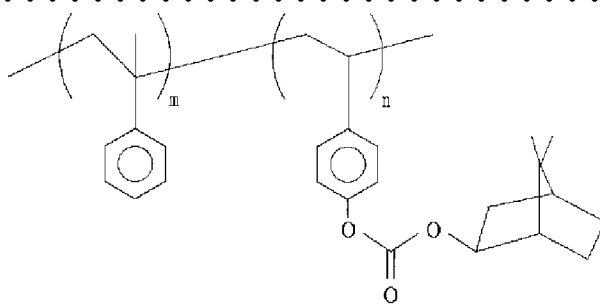
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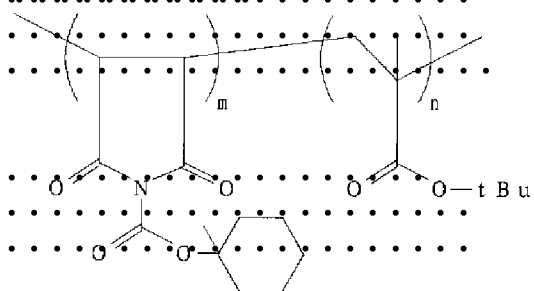
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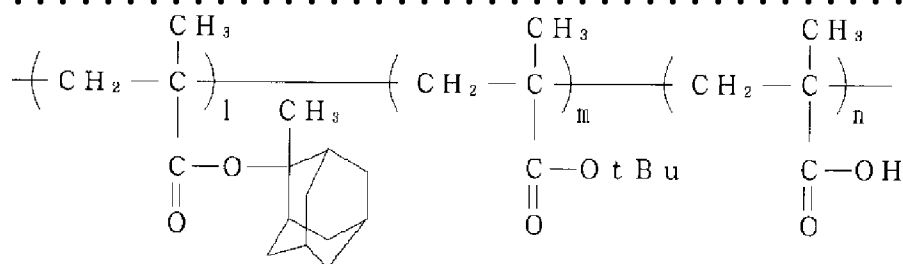
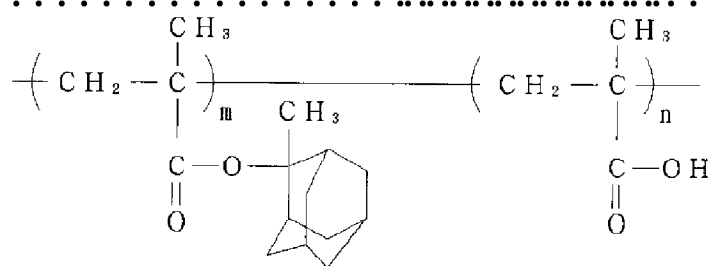
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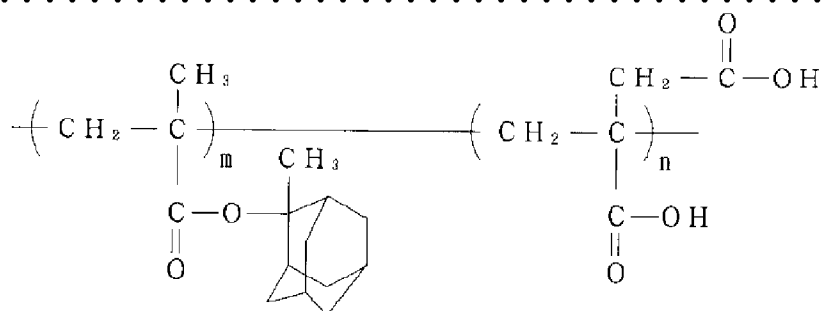


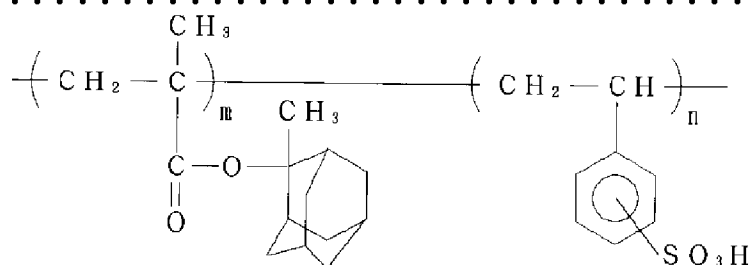
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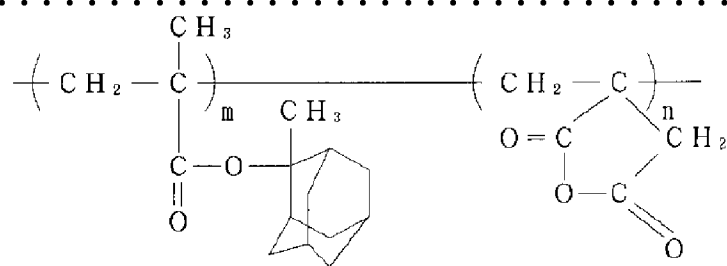
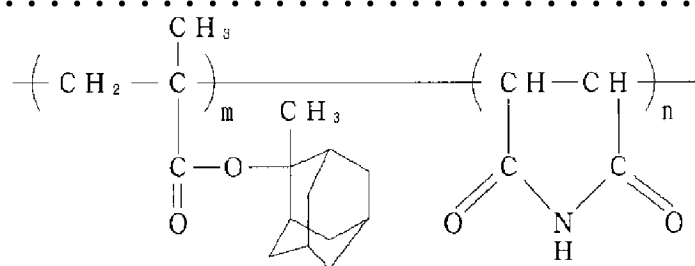


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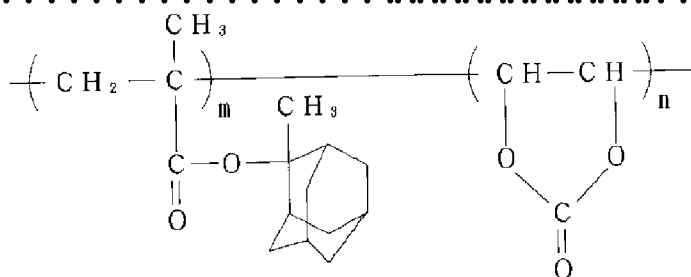
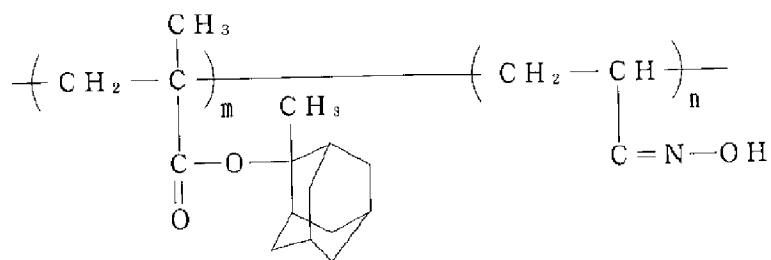


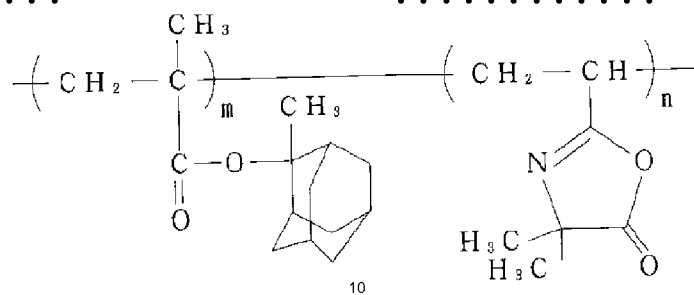


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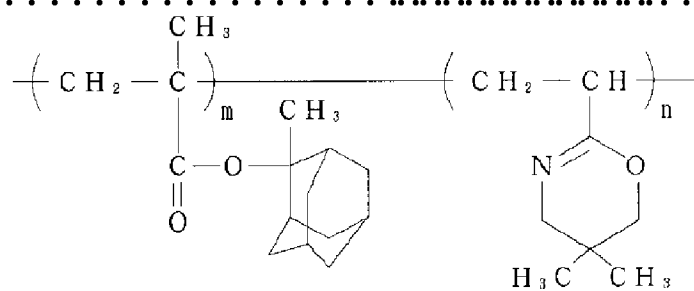




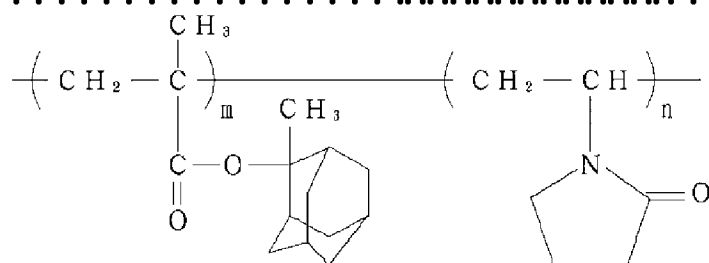




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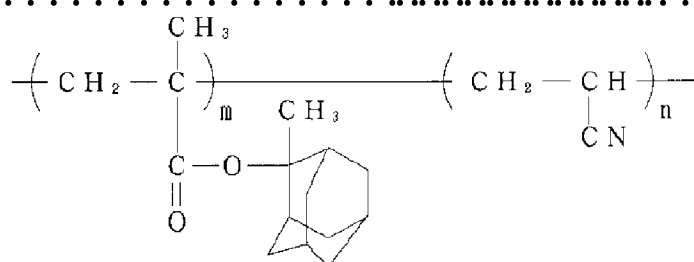


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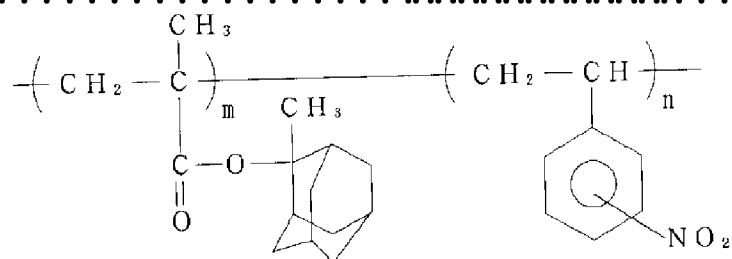
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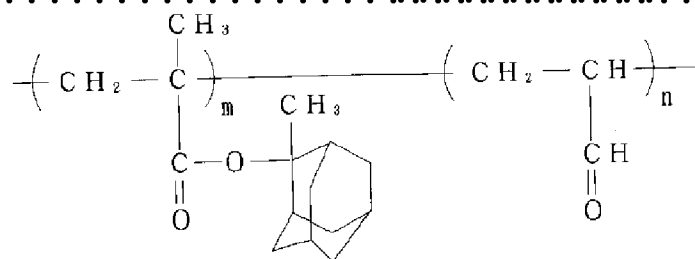
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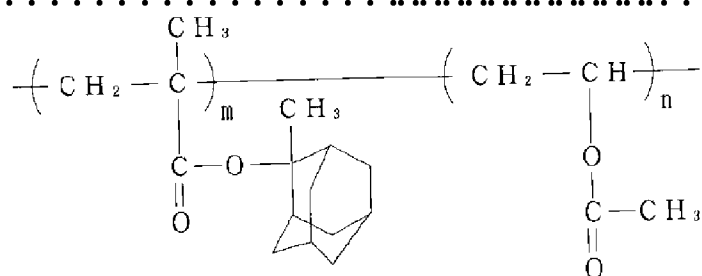


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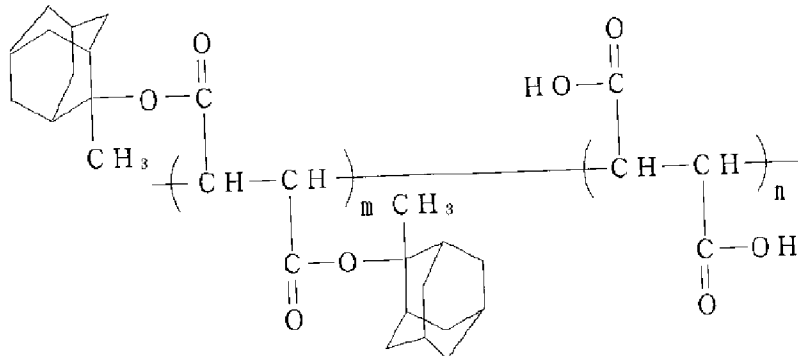
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A 100x100 dot grid with various annotations. The grid is composed of small black dots. Annotations include:

- A horizontal line at row 15, column 1 to 5.
- A horizontal line at row 15, column 47 to 52.
- A horizontal line at row 38, column 43 to 47.
- A horizontal line at row 65, column 1 to 5.
- A horizontal line at row 65, column 47 to 52.
- A horizontal line at row 82, column 1 to 5.
- A horizontal line at row 82, column 47 to 52.
- A horizontal line at row 100, column 43 to 47.
- A single dot at row 10, column 43.
- A single dot at row 10, column 47.
- A single dot at row 20, column 43.
- A single dot at row 20, column 47.
- A single dot at row 30, column 43.
- A single dot at row 30, column 47.
- A single dot at row 40, column 43.
- A single dot at row 40, column 47.
- A single dot at row 50, column 43.
- A single dot at row 50, column 47.
- A single dot at row 60, column 43.
- A single dot at row 60, column 47.
- A single dot at row 70, column 43.
- A single dot at row 70, column 47.
- A single dot at row 80, column 43.
- A single dot at row 80, column 47.
- A single dot at row 90, column 43.
- A single dot at row 90, column 47.
- A single dot at row 100, column 43.
- A single dot at row 100, column 47.



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